Last updated: 4/23/19, TU, MD

EIC Detector R&D Proposal Guidelines

1 What R&D Projects Qualify for Funding?

For proposals to qualify for funding, they need to include a well-articulated motivation for their research, both in terms of advancement of technology and improvement in physics reach. The proposed project must address what physics program at an EIC it will enable and why the technologies to be studied have a particular importance for experiments in an EIC environment.

The focus of this R&D program is generic R&D or directed R&D. Generic R&D in this context refers to concept-independent research, developing a new technology or advancing an existing technology to such a level that it will satisfy the requirements of an EIC. Directed R&D refers to research and development of an area that has been identified as an area where current state-of-the-art is not able to meet the EIC physics requirements or where a technology is completely missing or unaffordable. Pre-construction engineering & design (PED) falls outside the scope of this program. When a concept has demonstrated proof-of-principle and has reached a level of maturity where scaling by a factor of a few is involved to bring it to an EIC experiment, then this research is considered to have reached a level of maturity where it has satisfied the goals of the R&D program, can be moved out of this program and be easily revived once calls for concept detectors are issued and *project* R&D funding can be obtained.

2 Guidelines for Preparing the Proposals and Progress Reports

When compiling your proposals, the following guidelines should be followed. They are meant to increase the reviewability of the proposals and make the program more effective.

2.1 Front Page

The front page should contain the title of the project, date of submission, a list of **all** proponents and their institutions. The PIs should be clearly indicated as well as the contact person (typically a PI). There should be at most two contact persons, preferably one. If the proposal comes from an already approved R&D group/consortium or individual, the R&D ID (eRD#) needs to be indicated on the front page. A short abstract describing briefly the project is helpful. A table of content for longer proposals is also quite helpful.

2.2 Progress Report Section

If the proposal is the continuation of an already existing program it must also include a progress report of achievements in the past term. It should precede the proposal section and should provide answers to the following questions:

- What was planned for this reporting period?
- What was achieved?
- What was not achieved, why not, and what will be done to correct?
- What is planned for the coming months and beyond? How, if at all, is this planning different from the original plan?
- What are critical issues?

It should include a list of the existing manpower and what approximate fraction each has spent on the project. If students and/or postdocs were funded through this R&D program, please state where they were located and who supervised their work. For postdocs, please indicate how long they have been supported by this program. Please provide a list of publications coming out of the R&D effort.

The report must clarify what has been accomplished with the EIC R&D funds and what came as a contribution from potential collaborators. Describe what external funding was obtained, if any.

A template for preparing a progress report is available on the EIC Detector R&D Program web site: https://wiki.bnl.gov/conferences/images/5/59/EIC_RD_ProgressReport_Template_2017.docx

Note: The Committee noted repeatedly that their recommendations are not always being followed. The decision of the research groups to not follow the recommendations may be well justified but the Committee explicitly requests that, when there are clear deviations from the recommendations, they be justified both in the documentation and in the presentations at the meeting of the advisory committee.

2.3 Proposal Section

Proposals need to include a well-articulated motivation for the research, which should include a description of the technologies currently being used, what the technical limitations are, and how the proposed research will advance the current state-of-the-art and what physics program at an EIC it will enable (based, *e.g.*, on measurements described in the 2012 White Paper, “Electron Ion Collider: The Next QCD Frontier”, arXiv:1212.1701 or equivalent widely accepted documents).

Furthermore, it should describe why the current state of the art of the instrumentation is not adequate. The opportunity and time horizon exist now to attempt R&D projects, which carry a higher degree of risk, yet hold the promise to advance the state of the art significantly. Proponents are encouraged to explore more innovative ideas. Tables of performance requirements with a discussion of how the resulting detector specifications will produce a detector that meets the physics goals would be most helpful. Clearly state the expected results (deliverables) of the R&D project.

If this proposal was previously turned down, please state how the proponents addressed the concerns of the EIC R&D committee.

Proposals should note whether the concept can work at eRHIC and/or JLEIC, since the crossing rates are markedly different, and should also note whether the IR designs proposed are presenting any particular challenges for proposed physics measurements.

Proposals should be as definitive as possible. When resources are requested, proposals should state where the resources would be located and the specific responsibilities of the personnel. When graduate students and postdocs are required, the proposal should state who would supervise them and where they would conduct their work (see also 2.4).

Every proposal is required to provide a research program with a deliberate schedule for yearly deliverables.

A single comprehensive section on funding requests and budget is mandatory. Funds can only be requested for the coming FY, *i.e.*, October 1 until September 30. The proposal can contain a work plan for up to 3 years but the proponents need to be aware that each subsequent year requires a new proposal for continued funding. Funding awards for out-years will be contingent on progress reports at future meetings. The budget should be presented preferably at the end of the proposal and best augmented by separate tables listing the requests ordered by group and by subject. Please indicate the costs for manpower, hardware and travel.

Each proposal should also consider **three budget scenarios** and articulate deliverables under each scenario:

- a realistic nominal budget (baseline budget),
- a nominal budget minus 20%, and
- a nominal budget minus 40%.

Besides the deliverables, a clear set of intermediate milestones should be presented under each budget scenario and what goals will not be accomplished under the reduced budget scenarios.

Furthermore, each proposal should include a "**money matrix**" itemizing the budget allocations to the individual institutions and the area of research (that is, the sub-projects if more than one topic is addressed).

Example:

	R&D Subproject 1	R&D Subproject 2	R&D Subproject 3	
University A	$	$	$	Sum A
University B	$	$	$	Sum B
University C	$	$	$	Sum C
Nat. Lab. X	$	$	$	Sum X
	Sum 1	Sum 2	Sum 3	

Proponents are encouraged to form research consortia with a well-defined, targeted scope of research and state what synergies exist with related projects. Possibilities for collaboration should be indicated.

A combined proposal+progress report should not exceed 30 pages with reasonable formatting and font size. A proposal without progress report (first time proposals) should not exceed 20 pages.

2.4 Postdoctoral Fellows

Post-docs are an extremely valuable resource to accomplish the research goals. At the same time, post-docs are a long-term commitment and a long-term financial obligation to the program. While program management and the Committee will try hard to fulfill any 2-year commitments, be aware that, given the year-to-year funding nature of the program, funding beyond the first FY cannot be guaranteed. We would also like to emphasize that postdoc support does not automatically transfer from one postdoc to a new postdoc. Postdocs can be supported at the 100% level for at most two years. Only under exceptional circumstances will a postdoc be funded for an additional year, but at most at the 50% level. Other funding will have to be identified for the third year to facilitate transition to other sources of funding and provide a pathway for the postdoc to move into another position.

2.5 Travel

Awarded funding will be transmitted via one or more R&D subcontracts with BNL and are thus subject to DOE regulations. While travel funds can be added to the proposal, participants should be aware that travel funded through subcontracts has many strings attached and is in general discouraged.

- International travel has to be requested 45 days in advance. This implies that you will have to contact BNL around 60 days before the actual travel day.
- The situation is somewhat better for domestic travel but should be also requested at least 14 days before travel.
- Travel can be rejected by the DOE office at any time.
- Travel funds cannot be requested after the trip has taken place. Past trips that were not requested in time cannot be covered by R&D funds.